DOCUMENT RESUME

ED 147 285 SP 011 891

TITLE A Guide to Flammable Products and Ignition Sources for Secondary Schools.
INSTITUTION Consumer Product Safety Commission, Washington, D.C.
PUB DATE 77
NOTE 42p.; For related document, see SP 011 892 ; Charts on pages 23-24 will be marginally legible due to small print

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Fire Protection; Group Discussion; Industrial Arts; *Information Sources; *Learning Activities; Liberal Arts; Physical Education; Puzzles; *Resource Guides; Role Playing; *Safety Education; *Secondary Education; Singing; *Teaching Guides

ABSTRACT

This guide is intended as a resource manual and activity source book for secondary school teachers, librarians, administrators, curriculum planners, and teacher educators for teaching proper methods for selecting, using, maintaining, and disposing of flammable products and ignition sources. Particular emphasis is placed on methods for including product safety instruction in the liberal arts curriculum, the industrial arts curriculum, and the physical and social science curricula. Suggested activities include reading and writing exercises, song and poetry writing, poster design, demonstrations, home safety surveys, field trips, video presentations, guest speakers, science experiments, discussion groups, and research projects. Suggestions are made for improving the school library holdings in the field of product safety. A list of thirty-one sources of additional information is appended. (MJB)

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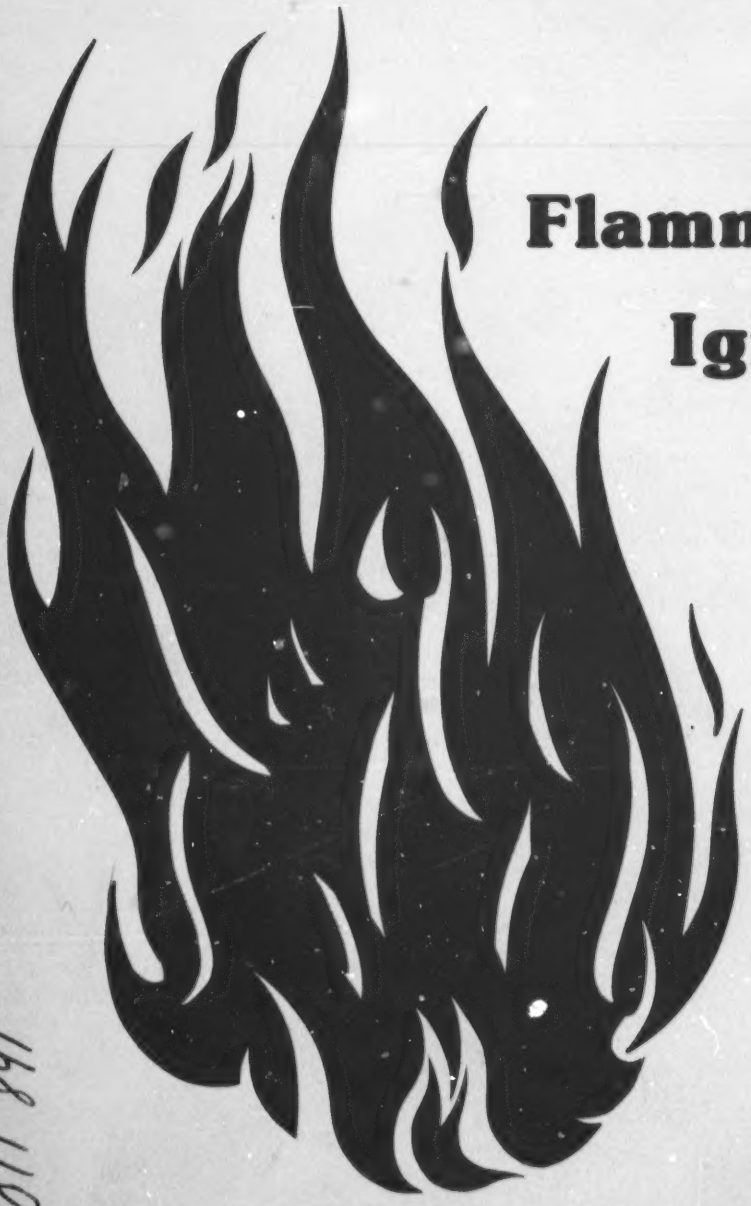

A Guide to Flammable Products and Ignition Sources

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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for Secondary Schools

SP 011 891

U.S. Consumer Product Safety Commission **Washington, D.C.**

The U.S. Consumer Product Safety Commission

Each year in the United States approximately 21 million people are injured and around 25,000 killed in home accidents. The majority of these injuries and deaths are product related. The annual cost of home injuries exceeds 5.6 billion dollars.

Congress recognized the urgent need for Federal regulations to ensure safer consumer products when it passed the Consumer Product Safety Act in 1972. The Act called for the creation of a new, independent Federal regulatory agency. The U.S. Consumer Product Safety Commission was activated on May 14, 1973, and directed by Congress to:

—protect the public against unreasonable risks of injury associated with consumer products;

—assist consumers in evaluating the comparative safety of consumer products;

—develop uniform safety standards for consumer products and to minimize conflicting State and local regulations; and

—promote research and investigation into causes and prevention of product-related deaths, illnesses, and injuries.

The Commission has jurisdiction over more than 10,000 products used in the home, school, and public places. In its efforts to protect the public from serious product-associated injuries, the Commission needs the help of every consumer, young and old.

To report a hazard or a product-related injury, write to the U.S. Consumer Product Safety Commission, Washington, D.C. 20207. In the continental United States, call the toll-free hotline—800-638-2666. Maryland residents only, call 800-492-2937.

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A Guide to Flammable Products and Ignition Sources for Secondary Schools

U.S. Consumer Product Safety Commission
Washington, D.C. 20207

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To the Educator:

In spite of numerous nationwide fire safety and prevention campaigns, statistical evidence on injuries and deaths resulting from fire is staggering.

> Approximately 12,000 people die in fires each year.*
>
> Every day—in the United States alone—more than 1600 homes are destroyed by fire . . . and one home catches fire every 57 seconds.*
>
> Children playing with matches account for 75,000 fires each year.*
>
> Fire is the second chief cause of death for young people between the ages of 5 and 14.*

These numbers do not even take into account the suffering of thousands of others who sustain less serious injuries requiring, at the very least, hospital emergency room treatment. Nor do they reflect the countless "minor" injuries that go unreported.

What is most important in citing these statistics is that many—if not all—of these fires and accidents can be prevented. Some are caused by inattention; others are caused by a lack of information; and still others are caused by the mishandling of flammable products and ignition sources—such as matches, lighters, flammable fabrics, flammable liquids, fireplaces, kitchen ranges, space heaters, and extension and appliance cords.

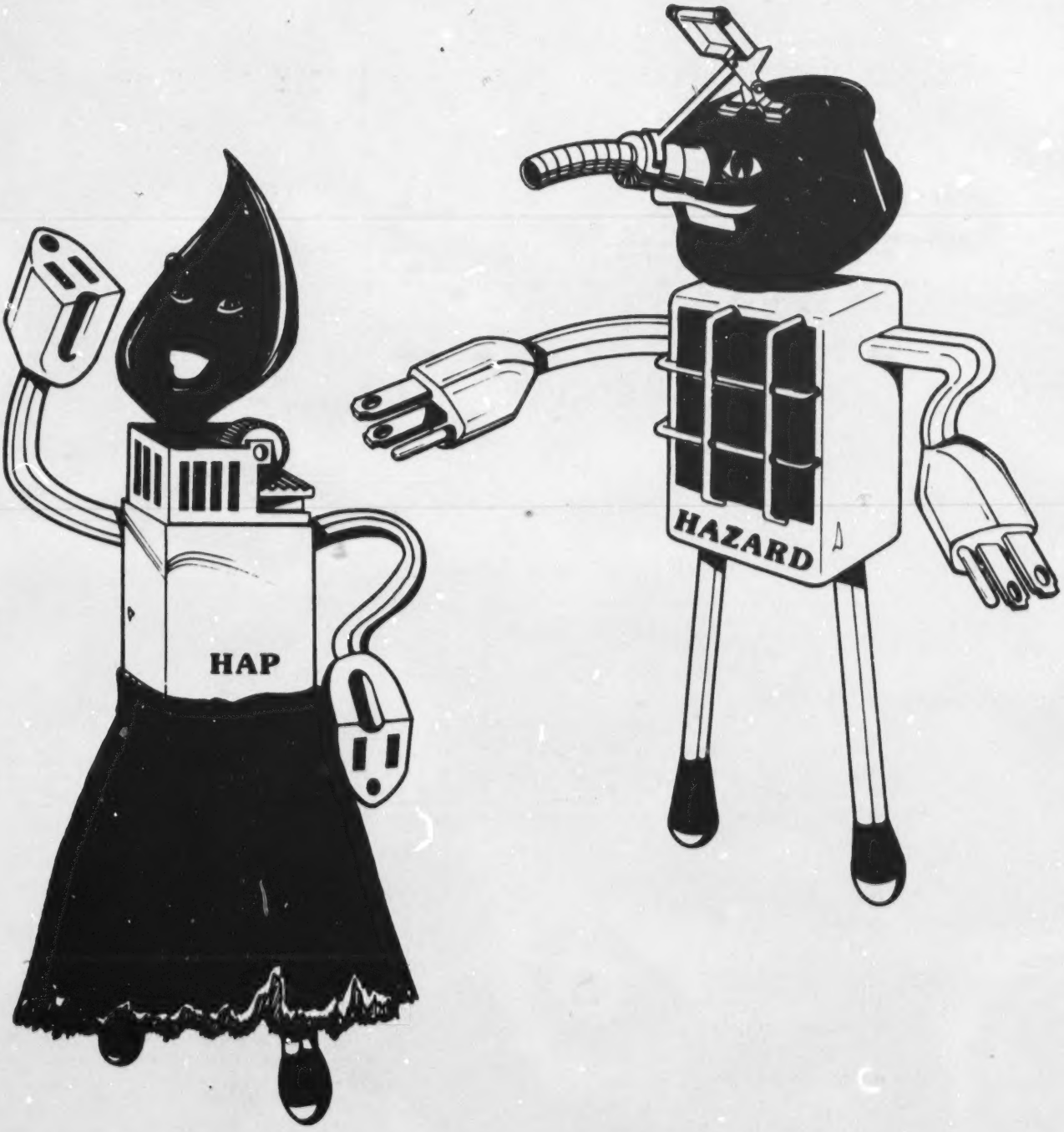
The U.S. Consumer Product Safety Commission is actively involved in the issuance of safety performance standards for various products, such as matches and flame-resistant children's sleepwear. But legislation and mandatory standards can only do so much. Legislation cannot stop dangerous misuse . . . only information and education can attempt to do that. People must learn and understand why certain products are hazardous . . . why some behavior leads to injury and death . . . and how they, as informed individuals, can prevent or reduce the likelihood of product-associated accidents.

It is logical that safety education should have a place in the school. It is a process that must begin at a very young age—in the kindergarten and elementary school—and it must continue to be emphasized and reinforced throughout all school levels.

Accidents are caused by people—and they can be prevented by people.

It is with this thought in mind that the Commission developed this *Guide*, and it is with this thought in mind that teachers, administrators, and all persons involved in school planning and activities—principals, teacher trainers, curriculum planners, and more—can use the suggestions contained in the Guide to communicate basic information so necessary to the lives and safety of young people.

*Data collected by the National Fire Protection Association



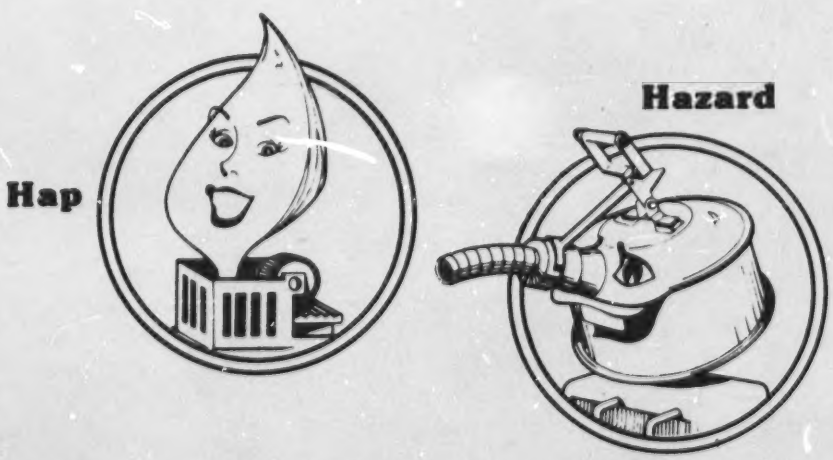
Hap and Hazard are U.S. Consumer Product Safety Commission representatives for flammable products and ignition sources. They appear throughout the materials in this series, guiding consumers to information and activities that will help them learn to protect others . . . prevent property damage . . . and lead safer lives.

So when you see Hap and Hazard, think fire safety!

Attention Teachers!

When demonstrating fire in any way, be sure to take the following pre-cautions:

- Have a well-ventilated room to prevent collection of fumes.
- Have the proper kind of fire extinguisher available.
- Have adequate protection for the hands.
- Have a non-flammable container available for fire residue.
- Use tongs when handling combustible materials.



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I. How to Use This Guide

Whether you are a secondary school teacher, a librarian, a school administrator, a principal, a curriculum planner, or a teacher trainer . . . this Guide was designed for you. It contains information that young people should be taught about flammables and ignition sources and also offers ideas for activities that might be useful in teaching these facts.

The U.S. Consumer Product Safety Commission has also produced a catalog that can be used as a companion text to this Guide. Entitled *Fire in Your Life*, this publication will be extremely helpful in providing you with background and safety information on flammable products and ignition sources. In addition, a transparency presentation—*The Hazard Hunt*—was developed by the Commission for viewing by both children and adults. If you need additional resource materials, write to the organizations listed in the Appendix (page 31), Where to Go for More Information.

To the fullest extent possible, these materials and resources should be integrated into the curriculum and used throughout the school year. A one-week, once-a-year exposure to these principles is simply not enough. There are certain seasons, of course, when extra emphasis on the proper selection, handling, storage, maintenance, and disposal of flammables is called for. Before Halloween, for example, it is proper to remind children about the dangers of flammable costumes, of standing too close to bonfires, of using candles to light jack-o'-lanterns. During the Christmas season, it is wise to remember that trees will burn, that Christmas lights can be an electrical hazard, and that it is not safe to put wrapping materials into the fireplace.

It is easier to deal with something that is understood that with something that is feared.

This Guide can aid you in communicating a healthy respect for fire, smoke, and flammable products—based on a knowledge of how fire and electricity work.

The activities presented here are merely suggestions—meant to help inspire your own ideas. There are some puzzles, checklists, and other devices that may be duplicated and distributed to students; other suggestions will call for additional work by you. But whichever materials you select, it is hoped that they will be helpful and enjoyable for everyone.

II. Objectives

A. The *primary objective* of the U.S. Consumer Product Safety Commission's program on flammable products and ignition sources is to prevent fires by teaching consumers the proper methods for selecting, using, maintaining, storing, and disposing of those potentially hazardous products. What is called for is a change in attitudes, and—along with this—a change in behavior.

B. Since young people are so frequently the victims of product-associated accidents, it is fitting that a *major objective* is to communicate safety information to them so that—

- unsafe attitudes and behavior patterns will be modified;
- newly learned attitudes and behavior will carry over into activities outside the school; and
- newly learned attitudes and behavior will be communicated to other people.

III. Basic Product Safety Messages To Be Taught

FOR MATCHES:

- Different types of matches present different types of hazards.
- The correct type of match should be used (i.e., long-handled matches for lighting a fireplace to avoid burned fingers).
- Matches should be kept away from small children.
- A matchbook cover should be closed before striking.
- Matches that have a striking surface on the back cover should be selected.
- Matches should be struck away from the user.
- Matches should not be used near flammable liquids or where vapors are concentrated.
- A match must be completely extinguished before being disposed of (no glow or smoke).
- Children should be taught how to handle matches safely and under supervision.
- Matches should not be used when user is preoccupied with something else, like driving a car.
- Elderly persons and persons with restricted mobility or reflexes must use extra caution when using matches.

FOR SPACE HEATERS:

- Different types of heaters present different types of hazards (fire, shock, toxic gases, explosion, hot surfaces, fabric ignition), so all must be used carefully and according to prescribed safety, care, and use instructions.
- About three feet of clearance should be kept all around a heater.
- Heaters should be selected with guards that reduce the likelihood of direct contact between the heat and/or flame and people or flammables in the area.
- People should avoid using unvented heaters because they can emit carbon monoxide fumes into the room(s).
- Heaters should be kept out of heavily used traffic lanes, away from furniture and drapes.
- Children should be kept away from space heaters.
- Charcoal should never be used in a heating stove.
- In general each heater is designed for one particular fuel; never substitute.
- Heaters should be inspected, cleaned, and adjusted regularly, and serviced at least once a year.
- Electric heaters should be kept away from water sources.
- All ashes in the heater must be cooled before they are thrown away.
- Flammables should never be used or stored near a space heater.
- People should not go to sleep with an unvented space heater on.

FOR FABRICS:

- Primary hazards are ignition and smoldering.
- Fabrics should be kept away from sources of heat or flame.
- When laundering flame-resistant fabrics, care labels should be followed closely to ensure maintaining the flame-resistant qualities.
- All fabrics will ignite; however, smooth, tightly woven fabric generally will ignite less readily than loosely woven fabric.
- Flame-resistant fabrics will resist flames better than untreated fabric and will self-extinguish if the flame or heat source is removed.
- People should avoid wearing loose fitting clothing while near a source of heat or flame.
- Draperies, upholstered furniture, and other fabrics should be kept away from sources of heat or flame.
- If clothing ignites, it should be removed at once if possible. Otherwise, drop down, roll in a blanket or rug to smother the flames, remove the smoldering clothing (if not adhering to the skin), and call a doctor immediately.

FOR EXTENSION AND APPLIANCE CORDS:

- The primary hazards are burns, electrical shock, and electrocution.
- Small children should never be allowed to bite, suck, tug, or play with cords.
- A wall outlet or extension cord should never be overloaded.
- An extension cord must match or exceed the size and type of cord that comes with an appliance.
- Cords must never be placed under carpets, over nails, in doorways, or in high traffic areas.
- Cords should be spected regularly for fraying, exposed wires, and loose prongs.
- Unused outlets and cord receptacles should be covered with electric tape or plastic safety caps to prevent children from playing with them and sustaining electrical burns or shock.
- Appliance plugs should fit securely into receptacles.
- Never use a 2-wire extension cord with a 3-wire power supply cord.
- Cords should be kept away from sources of heat or flame.
- A cord should never be wrapped around an appliance until the appliance has cooled.
- Cords should be kept away from water.

- Tape extension cords in place when using on a long-term basis.

FOR OVENS AND COOKING RANGES:

- Primary hazards are fabric ignition, direct body burns, and ignition of flammable liquids.
- Flammable liquids and their vapors can be ignited even by the pilot light of a gas range, so use and keep flammable liquids away from the range.
- People should never cook or reach across the range while wearing loose, floppy sleeves.
- People should never lean on the oven or range, or use it to warm themselves.
- Goodies that are tempting to children should not be stored on or near the range.
- Heat-resistant potholders or gloves should be used to remove pots from the range, not towels.
- Close attention should be given to safety features when selecting a range (controls not easily reached by children, knobs turn through a progression of temperature settings, controls in a safe and convenient place for adults).
- To prevent grease fires, the area around the range should be kept clean and cooking oils and fats stored away from the heat source. Grease should not be heated until it smokes. If it does ignite, it can be extinguished by turning the burner off and covering the pan with a lid. Baking soda, if readily available, also can be used to smother the fire.
- Infants should never be left unattended in a kitchen while an oven or cooking range is in use. Oven doors may become hot enough to cause a burn from contact with the exterior surface.

FOR FIREPLACES:

- The primary hazards are flying sparks, fire, smoke, and gases.
- The fireplace should be inspected frequently and used only if it is clean and in good repair.
- A screen should be used in front of the fireplace.
- Flammable liquids, charcoal, trash, or plastic packing material should not be used to encourage the fire.
- When using artificial logs, prescribed safety precautions should be followed.
- People should know how to properly operate the various parts of the fireplace, and the entire family should be instructed in the rules of fireplace safety.
- A fire should never be left unattended.
- Flammable items should be stored away from the fireplace area.
- Children should be kept away from the fireplace.
- Whenever possible, fabrics in the fireplace room should be made of flame-resistant materials.
- A person should not lean over the fireplace for warmth.

FOR FLAMMABLE LIQUIDS:

- Primary hazards are fire and explosion.
- All flammable liquids should be kept away from heat sources.
- Vapors from a flammable liquid can be ignited from a distant flame, spark, or heat source.
- Flammable liquids should only be used in well-ventilated area.
- Water should never be used to extinguish a flammable liquid fire because it can cause the fire to spread or explode.
- Flammable liquids should not be stored in your home or car.
- Fuel should not be added to a charcoal fire after it is started.
- Flammable liquids should be stored in labeled, tightly-capped non-glass containers.
- Flammable liquids should be kept away from children.
- If a flammable liquid spills, it should be cleaned up immediately.
- Whenever possible, products should be selected that are not flammable. If a flammable liquid is purchased, the label should be read carefully and the directions for storage and use should be closely followed.

FOR LIGHTERS:

- The primary hazards are fire and explosion.
- Lighters should never be used near flammable liquids.
- Check your lighter regularly for cracks, leaks, and other defects.
- If lighter fluid is spilled on or near the lighter, it should be cleaned off completely before lighting the flame.
- Lighters should be kept out of the hands of young children.
- Children should be taught about the potential dangers of lighters.
- A lighter should never be put away until the flame is extinguished.
- Lighters should be used with extra care around fabrics.
- A lighter should not be used when a person is tired or preoccupied.
- Persons with restricted mobility or reflexes must use extra caution with lighters.
- A lighter should be held away from the face and clothing when ignited.
- Persons should be aware of the dangers associated with flammable liquids since lighter fluid is flammable.

IV. A Guide For The Liberal Arts Teacher

The liberal arts curriculum offers students an excellent opportunity to be creative. This creativity can easily be channeled into efforts designed to (1) alert others about potential safety hazards and (2) educate them in the safe and proper ways of selecting, using, storing, maintaining, and disposing of various flammable products and ignition sources.

Activities suggested here are designed specifically for use in the liberal arts classroom. Some will be most applicable in the English or language arts class. Others will work quite effectively when combined with home economics studies or health and first aid programs. Still other will be particularly appropriate in the music or art class.

Below is a listing of all activities recommended for use by liberal arts teachers.

Activities for Liberal Arts Classes

1. The Writer's Guild 4
2. Read All About It 4
3. Become A Public Information Officer 5
4. It Says Right Here On The Label 5
5. Be A Safety Guide 5
6. Sing An Unsung Hero 6
7. Get Into Public Relations 6
8. Keeping Posted 7
9. Lend A Helping Hand 7
10. Look Around You 7
11. Flammable Fabrics Demonstration 8
12. Home Safety Check 8
13. Be a Circuit Rider 9
14. Test Your Flim-Flammability 9
15. Product Selection And Use 14
16. A Smoke Detector In Time Saves 14

1. The Writer's Guild

Approximate Time: Long-term project

Materials: Reference materials—*Fire In Your Life*

Objective: Students should understand and be able to communicate to others the dangers associated with various products.

Have your students write stories or plays that show the consequences of not following safety precautions and of misusing potentially hazardous products.

Suggest that the stories or plays show both the right way and the wrong way of purchasing, using, storing, maintaining, and disposing of flammable materials. If the stories are being written for use by students in lower grades, be sure to emphasize the hazards of playing with matches or standing close to an open flame. When the stories are completed, they can be collected, typewritten, and bound for distribution throughout the school, as well as being placed in the school library for reference.

2. Read All About It

Approximate Time: 30 minutes to 1 hour in class

15 minutes per day at home

Materials: Newspapers

Objectives: Students should know typical accident patterns associated with flammable products and ignition sources. Students should understand the causes and preventive measures for fires.

Over a period of time, have your students collect newspaper articles about fires and burn accidents in your area. Then ask them questions like these:

- What caused the fires and injuries?
- Could they have been prevented?
- If most fires and injuries are preventable, why do they occur so frequently?
- Why do people do things they know to be hazardous—like cleaning bicycles and machinery with gasoline . . . or pouring charcoal lighter on a fire that has already begun to burn?

Ask your students if they sometimes take unnecessary risks and if so, why.

3. Become A Public Information Officer

Approximate Time: 1 to 3 class periods

Materials: None

Objective: Students should learn and be able to communicate important safety information.

Ask your class to write public service announcements on product safety. Then try to have the announcements broadcast over the school public address system.

This activity is especially appropriate for use around specific holidays. For example, just before Halloween, the announcements could emphasize that flashlights — not candles — should be used in jack o'lanterns and that costumes should be made of a flame-resistant material. "Don't be tricked; treat yourself to a safe Halloween."

At Christmas time remind everyone that Christmas trees can become flammable if the moisture content of the tree is not maintained. Keep the tree's butt end in a holder filled with water to the cutline during its use. Keep the tree away from heat sources such as the fireplace or candles. Candles should not be used on trees but should be placed on flat surfaces and away from potentially flammable objects.

4. It Says Right Here On The Label

Approximate Time: 30 minutes to 1 hour in class

30 minutes at home

Materials: Information from product labels (copied by students and brought to class)

Objectives: Students should learn the potential dangers of flammable liquids. Students should understand the importance of following warning instructions on labels.

Some products, such as aerosols, paint removers, paint thinners, varnishes, lighter fluids, cleaning fluids, and charcoal lighters are clearly labeled as hazardous. Yet each year, thousands of people are injured through misuse and mishandling of these products.

Have your students examine labels on various common household items. Ask them to copy the warnings from the labels and bring them to class. Then, have them write descriptions of what might happen if these warnings are ignored.

Typical cautions are given below:

CAUTION: Never spray toward face or open flame. Avoid extreme heat or cold. Do not puncture or incinerate. Keep out of reach of children. (From a spray deodorant)

CAUTION: Contents under pressure. Do not puncture or incinerate. Do not expose to extreme heat or store at temperatures above 120°F. (From a room freshener)

CAUTION COMBUSTIBLE MIXTURE. DANGER: Contains naphtha distillates. Harmful or fatal if swallowed. Do not induce vomiting. Call a physician at once—keep out of reach of children. Do not apply to lighted fire. Do not store near open flame. (From a can of charcoal lighter)

DANGER EXTREMELY FLAMMABLE MIXTURE. DO NOT USE NEAR FIRE OR FLAME. (From a can of plastic putty)

5. Be A Safety Guide

Approximate Time: Long-term project

Materials: Reference materials—*Fire In Your Life*, art supplies

Objective: Student should learn and be able to creatively communicate necessary safety information to others.

Have your students write a safety handbook for distribution to other classes. Try to make the handbook as interesting and entertaining as possible. Include tips on what to do in case of a

fire and information on how fires get started and how they can be prevented.

The handbook can include a section for younger children with simple stories, cartoons, and puzzles. Your classes might also enjoy writing limericks, doggerel, and song lyrics for a younger group.

Once compiled, the handbook could be illustrated, bound, and distributed at school or at a school safety fair. Be sure that at least one copy is permanently bound and placed in the school library.

This particular activity will require some background research by the students to determine what the most common safety hazards are and how to handle products safely. You may wish to obtain materials from the sources listed at the end of this Guide. The U.S. Consumer Product Safety Commission's catalog, *Fire In Your Life*, will be especially helpful.

6. Salute An Unsung Hero

Approximate Time: Long-term project

Materials: None

Objective: Students should be able to organize elements of a local safety campaign.

Suggest that the class write a song or poem in honor of a local "unsung hero"—someone who prevented a serious injury—perhaps a member of the local fire department, or a teacher, or a community leader who has contributed to making the school or town a safer place to live.

Ideally, this could be part of a local safety campaign in which an "unsung hero" contest is conducted. In this case, the winning entry could be presented at the awards function.

7. Get Into Public Relations

Approximate Time: Long-term project

Materials: None

Objectives: Students should be able to identify and communicate valuable safety information to others. Students should be able to organize elements of a safety campaign.

Almost every effective safety campaign has a catchy slogan with a singable, "whistle-able" tune. Hold a contest to pick the best jingle for the school safety fair.

Your students might also enjoy making up songs to be included in a safety handbook for younger children. Or they could devise and provide musical accompaniment for a radio program to be presented by your school.

8. Keeping Posted

Approximate Time: 1 to 3 class periods

Materials: Art supplies

Objectives: Students should know and be able to communicate the correct and incorrect ways of selecting, using, storing, maintaining, and disposing of various flammable products and ignition sources.

- Make posters illustrating safety hazards and the right and wrong way of doing things.

  FOR EXAMPLE: Show someone cooking while wearing clothing with loose, floppy sleeves, in imminent danger of going up in flames; then show someone cooking while wearing clothing with tighter-fitting sleeves and no billowy top.

  Show someone cleaning up spilled paint with gasoline near a space heater. Then show someone removing spilled paint with paint remover in a clear space with the windows open.
- Design a colorful poster showing common home fire hazards. Display it prominently in the classroom, in the school lobby, in the lunchroom, or in some other well-traveled area.
- Have your students make up an illustrated check list. (You can borrow ideas from the ones included in this Guide.) These could be copied or printed and distributed from a box near the other posters.

9. Lend A Helping Hand

Approximate Time: Long- or short-term project

Materials: Variable

Objective: Students from different classes should be able to work together effectively to select and communicate important safety information.

Find out what safety-oriented activities are planned in other classes. Then suggest that your students contribute to these efforts when it is appropriate.

For example, art classes could illustrate a safety handbook written by English classes. They could also prepare posters, signs, and displays for a school or community safety fair. They could also collaborate in designing a safe home—with Home Planning classes, Architectural Design classes—a home without fire hazards.

10. Look Around You

Approximate Time: 15 to 30 minutes

Materials: None

Objective: Students should understand the dangers and safety precautions associated with flammable liquids.

Many of the products used in art classes, industrial arts areas, and laboratories are flammable . . . paints, thinners, brush cleaners. Check with your students to be sure all such products are stored safely . . . away from extreme heat or open flames. Be sure they are in tightly closed metal or non-glass containers.

Remember that vapors, too, are flammable. Are there any oily rags stuffed into corners? These can ignite spontaneously. If the rags cannot be easily stored in sealed metal or non-glass containers, dispose of them immediately after use. It's simpler and safer to keep a supply of clean rags on hand.

11. Flammable Fabrics Demonstration

Approximate Time: 1 to 1½ hours

Materials: Small swatches of fabrics — cotton, wool, linen, silk, acrylics, modacrylics, polyester, blends, upholstery fabric, flame-resistant fabric, non-flame-resistant flannel; deep glass or heavy metal dish; matches or lighter; tongs; *Fire In Your Life*

Objectives: Students should know the dangers associated with different types of fabrics. Students should understand the dangers of using certain types of fabric for certain types of clothing.

Collect small swatches of a variety of fabrics. Include natural fibers (cotton, wool, linen, silk), synthetic fibers (acrylics, modacrylics, polyester), and blends of natural and synthetic fibers. Also, include some upholstery fabrics and samples of flame-resistant fabrics used in children's sleepwear. Make sure there are a variety of fabric weights and surface finishes.

In a deep glass or heavy metal dish, use a match or cigarette lighter to set the fabrics on fire. Be sure to use long-handled forceps or tongs for holding the samples.

Note that:

- Natural fibers burn.
- Wool and modacrylics are difficult to ignite and tend to self-extinguish.
- Synthetics have a tendency to melt while burning.
- Both fabric weave and weight affect flammability. Tightly woven fabrics burn more slowly and are more difficult to ignite than sheer, loosely woven fabrics.
- Sometimes the surface nap burns, but the base fabric doesn't.
- Flame-resistant fabrics will burn, but more slowly than untreated fabrics of the same type. Also, flame-resistant fabrics will extinguish themselves when the flame is removed.

Discuss with your class the best fabrics to use for specific types and items of clothing—in particular children's sleepwear—in light of what is shown in this demonstration. Tell them about the Federal flammability standards promulgated by the U.S. Consumer Product Safety Commission and why it is important that home-sewers are careful to purchase fabric that meets these standards. If you need additional resources, Chapter 5 of *Fire In Your Life* covers flammable fabrics and the Flammable Fabrics Act. Also, the Commission has available Fact sheet No. 25, "Flammable Fabrics Act and Regulations," as well as an informative booklet entitled *Guide to Fabric Flammability.*

12. Home Safety Check

Approximate Time: 30 minutes to 1 hour in class
15 to 30 minutes at home

Materials: Duplicated copies of checklist

Objectives: Students should be able to identify hazardous situations and behavior patterns in the home. Students should know the best remedies for these hazards.

Have your students conduct a home safety survey to discover the hazardous conditions existing in their homes and the potentially dangerous actions of members of their families. For convenience, the checklist presented on pages 10 and 11 can be duplicated and distributed to the class.

After they have checked their homes, have a class discussion to find out:

- what hazards are most frequently detected;
- which dangerous activities are most typically observed;
- which family members are most likely to engage in these activities;
- what constructive actions can be taken to eliminate these hazards; and
- how family members can be educated about product safety.

It is important to have a class discussion of this kind. Otherwise, the safety check may never get any further than the classroom door.

13. Be A Circuit Rider

Approximate Time: 30 minutes to 1 hour in class
15 to 30 minutes at home

Materials: Reference material—*Fire In Your Life*

Objective: Students should know the dangers of overloading a circuit. Students should be able to calculate wattage and amperage.

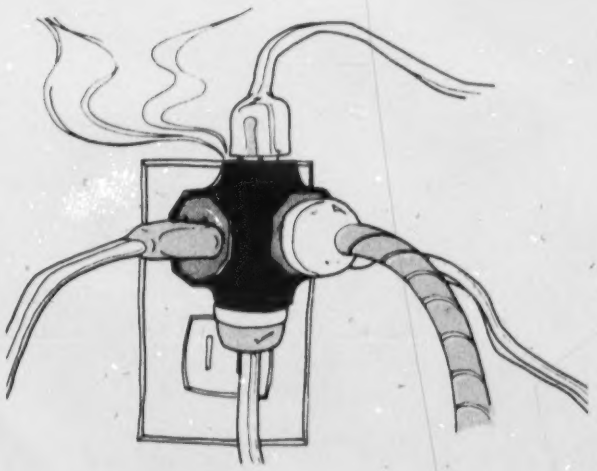
Many fires in the United States stem from electrical causes. Frequently, this occurs from overloading the circuits and overheating electrical wiring. Many of these fires could be prevented if everyone was careful not to plug too many appliances into one circuit.

Have members of the class check the labels on small home appliances, such as toasters and toaster-ovens, radios, portable TVs, hair dryers, irons, blenders, and mixers. Labels list either the wattage or the amperage. If wattage is given, ask the students to divide by 120 (the average household voltage) to obtain the number of amps (or the amount of current flowing through the wire).

Although most household circuits can handle 15 amps, the average extension cord will handle only about 7 amps safely, so there is a greater danger of overheating when an extension cord is overloaded.

Have the students conduct a circuit survey of their homes to locate any overloaded circuits that could be potentially disastrous. In those cases where an overload or a potential overload is found, have them try to rearrange the pattern of appliance use so that it is safer. Be sure to hold a class discussion of such situations and possible solutions.

Valuable background information on electricity, extension and replacement cords, and several electrical appliances is found in *Fire In Your Life*. You may want to have your students read these sections or, instead, the entire catalog.



14. Test Your Flim-Flammability

Approximate Time: 30 to 45 minutes

Materials: Duplicated copies of quiz

Objective: Students should learn and remember basic safety information on flammables and ignition sources.

The safety quiz included here can be duplicated and distributed to your students. Have them take the quiz in class and then use the answer guide to discuss the correct responses.

Home Safety Check

Check your house or apartment room by room to see which of these fire hazards you find. Then take action to correct them.

Kitchen

____ Matches within easy reach of children.

____ Overloaded outlets or extension cords.

____ Curtains or towel racks close to the range.

____ Flammable liquids (cleaning fluids, contact adhesives, etc.) or aerosols stored near the range or other heat source. Remember, even a pilot light can set vapors on fire. Dispose of outdated or empty cans properly.

____ Attractive or frequently used items stored above the range where someone could get burned reaching for them (especially small children in search of cookies or other goodies).

____ Worn or frayed appliance or extension cords.

Living Room, Family Room, Den, and Bedrooms

____ Matches and lighters within reach of young children.

____ Too-small or too-full ashtrays. Ashtrays should be large, deep, and emptied frequently, but only when all signs of heat and burning are gone.

____ Unscreened, uncleaned fireplace.

____ Worn or frayed extension cords or other electrical cords.

____ Extension cords run under rugs and carpets or looped over nails or other sharp objects that could cause them to fray.

____ Insufficient air space around TV and stereo that could cause them to overheat and start a fire.

____ Curtains, furniture, papers near a space heater.

____ Overloaded outlets or extension cords.

Basement, Garage, Storage Areas

____ Piles of stored newspapers or other rubbish. Newspapers stored in a damp, warm place may ignite spontaneously.

____ Oily, greasy rags. If these must be stored, they should be kept in labeled and sealed non-glass containers, preferably metal.

____ Flammable liquids (varnish, paint remover, paint thinner, contact adhesives, cleaning fluids) stored near workbench or pilot light and in anything other than labeled, sealed metal containers. Dispose of outdated or empty cans properly.

____ Gasoline stored in the house or basement. It should be stored away from the house (in an outbuilding) and only in safety cans that have flame arresters and pressure release valves.

____ Overloaded outlets or extension cords.

____ Fuses of the wrong size.

Have you seen anyone—

____ Cooking while wearing clothes with loose, floppy sleeves or full, billowing tops or skirts that may catch fire?

____ Using gasoline to start a fire in the grill or adding lighter fluid to an already-started fire?

____ Smoking in bed, in a chair, or on the sofa when tired, drinking, or under medication?

____ Spraying aerosols while smoking or near a space heater, range, or other ignition source?

____ Smoking while using a cleaning fluid, a paint thinner, or another flammable liquid?

____ Using a cigarette lighter after spilling fluid on the hands or clothing?

____ Reaching over a range or climbing onto a range to get something stored above it?

____ Leaning against a range for warmth or standing too near a heater or fireplace?

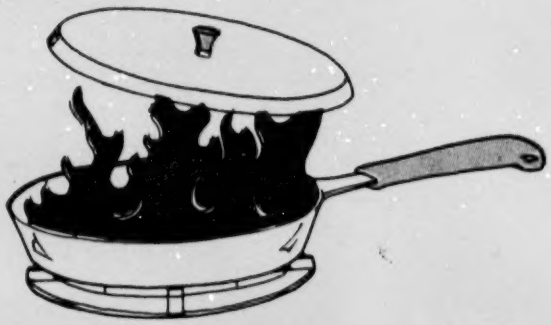
____ Inviting a small child to blow out a match?

____ Cooking without long hair tied back?

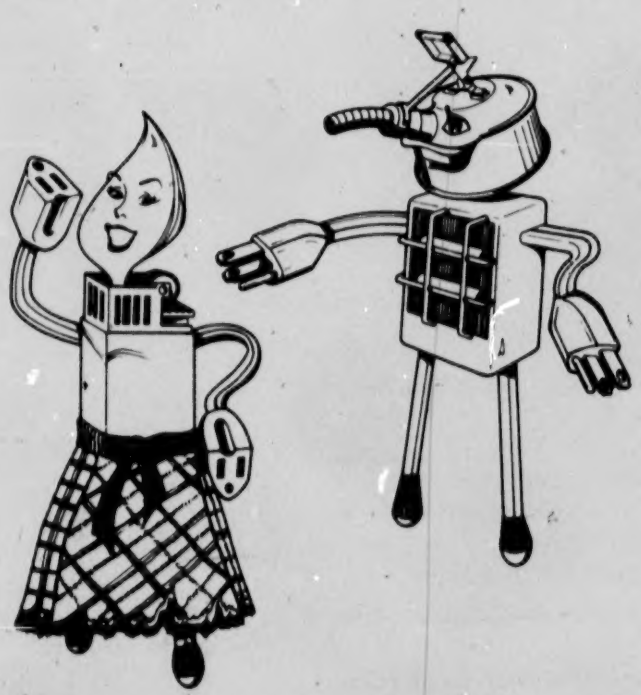
____ Peering into a closet with a lighted match, lighter, or candle?

____ Attempting to extinguish a grease fire with anything but baking soda or a lid?

____ Playing with matches or lighters? Small children do this frequently—and so do some adults.



These actions are dangerous. Ask your family to stop—for their own sake and for yours.



Choose the correct answer (or answers). Remember, there may be more than one.

1. The best way to extinguish a grease fire in a pan is to throw soda on the flames.

   A) Right B) Wrong

2. If there is a fuse that blows frequently, solve the problem by replacing the old fuse with one of higher amperage: e.g., replace a 15 amp fuse with a 30 amp fuse.

   A) Right B) Wrong

3. When you need an extension cord to plug a lamp on one side of the room into an outlet on the opposite side, run the extension cord under the rug or carpet to keep it out of sight and make the room look neater.

   A) Right B) Wrong

4. Flame-resistant fabrics, such as those used in children's sleepwear:

   A) Resist burning better than untreated fabrics.
   B) Will not burn.
   C) Extinguish themselves when the flame source is removed.
   D) Burn more slowly when in contact with the flame source.

5. Soap is not recommended for washing all flame-resistant fabrics because:

   A) It won't get them clean.
   B) It may make the fabric stiff.
   C) There is a chemical reaction between soap and the flame-resistant coating that produces a substance which can cause allergic reactions.
   D) Soap can leave a fat deposit that builds up and reduces or destroys the flame-resistant properties.
   E) It is perfectly all right to use soap.

6. On a cold day, supplement the regular heating system by turning on the oven and opening the oven door.

   A) Right B) Wrong

7. Gasoline may be safely stored in and around the house or car:

   A) In glass containers.
   B) In plastic containers or jugs.
   C) Only in approved containers with flame arresters and pressure release valves.
   D) There is no safe way to store gasoline in your car or home.

8. At Christmas time, it is a nice idea to throw wrapping materials into the fireplace.

   A) Right B) Wrong

9. The best immediate treatment for a minor burn is to coat the area with grease or butter.

   A) Right B) Wrong

10. The UL (Underwriters' Laboratories) label on appliances and extension cords is a guarantee of safety.

    A) Right B) Wrong

11. An ampere is a measure of:

    A) The force that pushes the current along the wire.
    B) The amount of current that flows through the wire.
    C) The resistance to the flow of current.
    D) The rate of using electrical power.

12. The normal wall outlet is capable of carrying:

    A) 7 amperes. C) 15 amperes.
    B) 10 amperes. D) 30 amperes.

13. An ordinary extension cord can safely carry:

    A) 7 amperes. C) 15 amperes.
    B) 10 amperes. D) 30 amperes.

14. Vapors from flammable liquids:

    A) Are not themselves flammable.
    B) Rise to the ceiling.
    C) Can travel across a room.
    D) Are highly flammable.
    E) Sink to the floor.
    F) Can travel only a few inches.

Test Your Flim-Flammability Answer Guide

1. B

   The best way to extinguish a grease fire in a pan is to turn off the heat and cover the pan to smother the flames. You may waste time hunting for the baking soda, or you may scatter the grease and flames if you toss the soda carelessly onto the fire. NEVER throw water on a grease fire, and NEVER pick up a pan of flaming grease.

2. B

   Most lighting circuits can safely handle only 15 amps. Using a 30 amp fuse allows more current to flow through the wires than is safe. The wires—or the extension cord with all those extra appliances plugged in—may overheat and start a fire.

3. B

   Never run extension cords under carpets where they may be walked on and frayed without being noticed. Extension cords should be used only on a temporary basis or as an emergency measure. Rearrange the room to avoid long-term use of extension cords.

4. A, C, and D

   Flame-resistant fabrics—like all other fabrics—will burn.

5. B and D

   Always follow the instructions on the label—exactly—when washing flame-resistant fabrics. Phosphate detergents are recommended. If phosphates are banned in your area, the best substitute is a heavy duty nonphosphate detergent. Do not use soap—it may reduce or destroy the flame-resistant protection.

6. B

   Never use a cooking range or oven as a heating device. Poisonous gases may be produced and could spread throughout the house.

7. D

   THERE IS NO SAFE WAY TO STORE GASOLINE IN YOUR HOME OR IN YOUR CAR. If you must store gasoline, use approved safety containers and keep them away from the house and out of the car.

8. B

   Do not throw wrapping materials into the fireplace. Paper may flare up and send a shower of sparks into the room. Also, polystyrene and some plastics produce carbon monoxide in dangerous quantities when they are burned.

9. B

   The best treatment for a minor burn is to run cool water over the injured area immediately. Grease, butter, or ointments shut out air, prevent cooling, and may increase the severity of the burn.

10. B

    The UL label is not a guarantee of safety. It means that the manufacturer has complied with certain voluntary safety standards.

11. B

    An ampere is a measure of the amount of current that flows through the wire. It is this current that can kill you. ("A" defines volt; "C" defines ohm; and "D" defines watt.) Most electrical appliances list on their labels the watts or amperes used. If the wattage is given, divide by 120 (the usual household voltage) to find the amperage. Use this information to avoid overloading circuits and creating a fire hazard.

12. C

    The normal wall outlet can handle 15 amperes safely. Do not overload outlets by using multiple adapter plugs.

13. A

    Most extension cords can safely carry only 7 amperes—about half of what a wall outlet can handle. Do not overload the extension cord. The wires may overheat and start a fire.

14. C, D, and E

    Many people forget that the vapor from a flammable liquid can be as dangerous as the liquid itself. People who would never dream of tossing a match into a can of gasoline or paint thinner use these products near pilot lights, lighted stoves, space heaters, or while smoking. Vapor can travel across a room and be ignited by a pilot light or a stray spark from workshop equipment. Be extremely careful with these products; use them only in well ventilated areas and away from any possible ignition source.

15. Product Selection And Use

Approximate Time: 10 to 20 minutes

Materials: Duplicated copies of chart

Objective: Students should learn safe methods for selecting, using, storing, and maintaining flammable products and ignition sources.

The Product Selection and Use Chart shows the proper selection, storage, use, and maintenance of eight potentially dangerous products. The chart can be duplicated and distributed to each student to post in the home. In class, discuss with your students the reasons for the safety precautions recommended and the possible results of product misuse.

16. A Smoke Detector In Time Saves . . .

countless lives and an untold amount of property from destruction by fire and smoke.

The following is information about an inexpensive and reliable means of protection for families from injury and loss of property due to fire and smoke. Use the information to teach your students about smoke detectors.

A smoke detector senses a fire a few minutes after it ignites and gives warning before smoke becomes deadly. Smoke spreads faster than heat and most victims die from inhaling it long before heat or flames reach them. Smoke detectors help save lives and minimize the loss of property.

Two types of smoke detectors are available:

The *IONIZATION CHAMBER DETECTOR* usually senses flaming fires before a photoelectric detector. It uses a radioactive source to produce electrically-charged molecules (ions) in the air. This creates an electric current within the detector chamber. When smoke enters the chamber, its particles attach themselves to the ions, thus lowering the current and setting off an alarm.

The *PHOTOELECTRIC DETECTOR* usually senses smoldering fires before the ion chamber detector. The unit uses a light source and light-sensitive cell. The light scatters when it strikes the smoke particles, reflecting into the cell, and sets off the alarm.

Smoke detectors have proved to be most successful in protecting people and property from fire and smoke. Many Federal, State and local agencies have begun to require their use in houses and mobile homes. The U.S. Consumer Product Safety Commission has made smoke detectors a focus of its fire safety program and has begun to distribute information about purchasing, installing and maintaining them. Key points to remember are:

PURCHASING—

- Buy a smoke detector with complete instructions and information.
- Consider the location of outlets when buying an electric model; also that your electricity may be unreliable in a fire.
- Consider the need to remember to replace the batteries of a battery-operated detector.
- When choosing a battery-powered detector, be sure it will sound a warning when the power is too low to operate the smoke detector.
- Choose a photoelectric detector which sounds a warning when its bulb burns out.

INSTALLATION—

- Put a smoke detector outside the bedroom door to warn you while you sleep.
- Put a smoke detector near or on the ceiling, at the top of a stairway, or in other places smoke is likely to pass as it rises.
- Install a detector for each floor of your house.

MAINTENANCE—

- Replace batteries once a year or when the warning of low power sounds.
- Follow the manufacturer's instructions for testing your smoke detector periodically (in any event, at least once a month).

Your students can collect smoke detector information from companies that sell detectors, from local authorities involved with area housing regulations, from fire department officials, and by writing to the Consumer Product Safety Commission. Devise your own projects for using the information they collect; i.e., add a question about detectors to the home safety checklist, or invite a guest speaker to demonstrate the different types of smoke detectors. Impress upon your students the need for this inexpensive and reliable means of protection.

Product Selection and Use Chart

Product	Selection	Use	Storage	Maintenance
Matches	Safety matches — do not buy "strike anywhere" kind. Book matches — those with striking surface on back of cover. Choose plain ones less likely to attract children.	Do not use in enclosed spaces such as closets, tents. Do not use or smoke in presence of flammable liquids or vapors.	Out of reach of children. Away from ignition sources (stoves, pilot lights, etc.)	
Lighters	Choose plain ones, less likely to attract children.		Out of reach of children.	Refill carefully — do not light in presence of spilled fluid.
Space Heaters	Vented models preferable. Protective grill around coils or flames so children can't reach them.	3' clearance on all sides needed. Do not use near flammable liquids. Do not place too near furniture or curtains. Do not stand too close — clothes may ignite.		Keep clean and free of dust. If electric, keep cord in good repair. Repair or dispose of if faulty.
Fireplaces		Use metal fire screen and proper fireplace tools. Do not burn wrapping materials, especially polystyrene and plastics. Do not stand too close.		Clean chimney, clean damper at least once a year.
Flammable Fabrics	Choose style and fabric type with safety in mind. Purchased children's sleepwear is flame resistant. Look for treated fabric for home sewing of sleepwear (PJ's, robes, gowns).			Wash flame resistant fabrics according to label. Use heavy duty non-phosphate detergent if phosphates banned.
Flammable Liquids (Gasoline)	Try to select quantity needed for immediate use.	Do *not* use as cleaning liquid or spot remover. Never use or store in presence of pilot lights, equipment which may cause sparks, flames, or while smoking. Do not use to start fire.	Store *away* from house *only* in approved container, never in glass. Do *not* store in car trunk. *There is no* safe way to store gasoline in home or car.	
Other Flammable Liquids (including aerosols)	Avoid flammable cleaning products.	Do not use while smoking or near flame, even pilot lights, heater. Use in well ventilated area.	Store out of reach of children, away from ignition sources. Paint remover, thinner, varnish, etc. should be stored in tightly sealed, clearly labeled metal containers.	
Kitchen Ranges	Choose models with controls that can be operated without reaching across a burner. If gas, a pilot light is desirable for burners and oven. Controls should be difficult for children to turn on.	Cook in close-fitting skirts or blouses, and not in clothing with loose, floppy sleeves. Avoid storing items attractive to children above range. Keep curtains and towel rack away from range. Electric models should have burner signal lights.	Do not lean on range. Keep flammable liquids away.	Keep clean to avoid grease fires. Have any suspected gas leaks checked by gas company immediately. Keep pilot lights lit.

V. A Guide for the Industrial Arts Teacher

The industrial arts class provides an excellent setting for demonstrating the proper methods of handling and using flammable products and ignition sources. Here, safety considerations can easily be made an integral part of regular course material.

For many students, industrial arts classes are more meaningful than the purely academic subjects. Part of the reason for this is that they bear a closer relationship to everyday life. It is therefore up to the industrial arts teacher to take advantage of the opportunity presented. The activities suggested here will help you.

Many of the materials presented can easily be reproduced, distributed to students, and used as a basis for class discussion. It is hoped, however, that these activity suggestions will serve as a starting point for the teacher's own ideas—ideas suited to the specific needs of the particular community and class.

Below is a listing of activities recommended for industrial arts teachers.

Activities for Industrial Arts Classes	Page
1. Shopping Around	17
2. Tripping Out	17
3. Multimedia Affair	19
4. Nothing New Under The Sun	19
5. Listen To An Expert	19
6. Be A Quiz Whiz	20

1. Shopping Around

Approximate Time: 20 minutes to 1 hour

Materials: Duplicated copies of checklist (optional)

Objectives: Students should be able to identify typical workshop hazards. Students should be instrumental in keeping the workshop a safe area

Discuss safety hazards commonly found in workshops, whether at home or in the school. Use the checklist provided here to help pinpoint potentially dangerous situations; more may be found during the survey. Discuss the results found and how the hazards can be eliminated. Repeat this exercise at periodic intervals during the school year so that safety awareness and behavior will be at an optimum.

2. Tripping Out

Approximate Time: One half day

Materials: Reference materials

Objective: Students should know some of the fire hazards common in modern industry and how best to avoid or correct them.

Plan a field trip to a local industry. Before the trip, discuss the kinds of safety hazards, particularly fire hazards, that may exist in this particular industry. Plan to meet with the Safety Officer to review the Safety Program in existence and what positive results it has effected. When the students return, discuss any potential hazards observed, including careless actions noticed.

- What could have been done to correct them?
- Whose responsibility is it to see that they are corrected?

Shopping Around Checklist

Check for the following hazards—first in the industrial arts classroom, then in the home workshop. If any are present, correct them immediately:

- ___ Overloaded outlets or extension cords.
- ___ Light-duty extension cords used where heavy-duty cords are called for (heat-producing appliances and tools). Those with higher amperage require heavy duty cords.
- ___ Flammable liquids (cleaning fluids, lighter fluids, varnish, paint removers, paint thinners) or aerosols stored near space heaters or other heat sources or used where a spark from tools or a pilot light could set vapors on fire and cause an explosion. Read labels and follow directions carefully; many products used in the workshop are extremely flammable.
- ___ Gasoline stored in the workshop. If it is necessary to store gasoline at all, keep it in an outbuilding and in a safety can equipped with a flame arrester and pressure release valve. NEVER USE GASOLINE AS A CLEANING AGENT.
- ___ Oily, greasy rags lying about. These should be disposed of or kept in sealed metal containers. If oily rags are left in a corner or in a closet, enough heat may build up to cause spontaneous combustion.
- ___ Piles of newspapers or other rubbish. This is a hazard frequently found in home workshops. Here, too, spontaneous combustion may occur or a stray spark may start a fire.
- ___ Papers will serve as fuel for a fire of any origin. Keep your work area neat . . . and this includes sweeping up accumulated sawdust and wood shavings after a work session.
- ___ Frayed electrical cords. Replace them immediately.

3. Multimedia Affair

Approximate Time: Short- or long-term projects

Materials: *The Hazard Hunt, Fire in Your Life,* additional reference materials

Objective: Students should learn the hazards and safety precautions for flammable products and ignition sources.

The U.S. Consumer Product Safety Commission's transparency presentation, *The Hazard Hunt,* would be excellent for classroom viewing. The Commission's catalog on flammable products and ignition sources, *Fire In Your Life,* and a number of CPSC fact sheets and booklets would be of additional use to your students.

4. Nothing New Under The Sun

Approximate Time: Short- or long-term projects

Materials: Reference materials

Objectives: Students should know typical hazards of past and present industries. Students should be aware of the most common source of these hazards.

Identify unsafe conditions in early and present-day industries. (This, of course, calls for research by both you and your students.) Then, stimulate a class discussion with questions like the following:

- What hazards are no longer present?
- How were these hazards eliminated?
- What can be done about today's problems?

Note for your class that in spite of technological advancement, one problem is as common today as it was in earlier years—human carelessness. Disregard for common-sense safety precautions in dealing with potentially hazardous products is not confined to one era or one place.

5. Listen To An Expert

Approximate Time: One class period

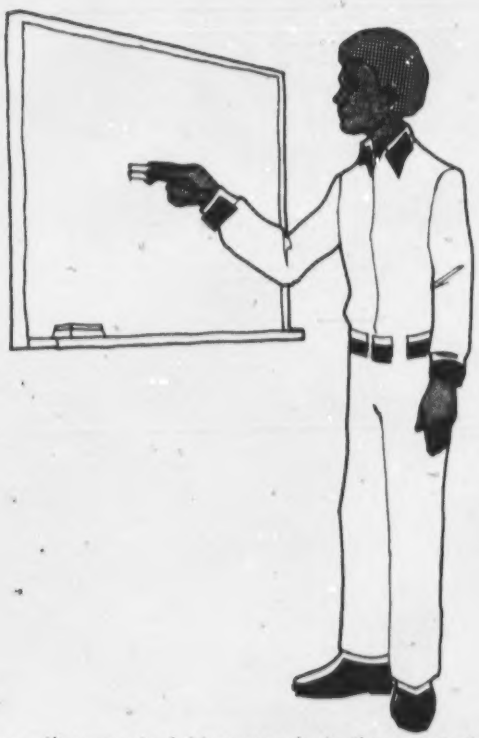
Materials: Check in advance and have available any materials requested by the speaker.

Objectives: Students should know common hazards and safety precautions for modern industry. Students should understand the high cost of accidents. Students should learn the most frequent causes of accidents.

Have a safety engineer or a workmen's compensation representative speak to the class. Ask him or her to discuss common hazards found in industry and what preventive measures can be taken. Cover such areas as:

- How could industries or certain areas within be designed to be safer?
- How often is simple carelessness responsible for personal injuries and industrial losses?

Have the workmen's compensation representative tell about the types of injuries most



frequently reported. How much do these injuries cost in financial terms? Consider the untold cost in human suffering.

Ask the speaker to tell of one or two dramatic situations illustrating the results of taking "short-cuts" or inattention. This will help impress upon the students the importance of good working habits.

6. Be A Quiz Whiz

Approximate Time: 30 to 45 minutes

Materials: Duplicated copies of quiz, reference material—*Fire in Your Life*

Objective: Students should learn and remember safety information relating to the workshop.

The quiz provided here can be duplicated and distributed to your students. After they have taken the quiz in class, use the answer guide to discuss the correct responses.

Be A Quiz Whiz

Choose the correct *answer* or *answers*. Remember, there may be more than one.

1. Gasoline may be safely stored in the workshop, basement, or car:
   - A) In plastic containers or jugs.
   - B) There is no safe way to store gasoline in your car or home.
   - C) In glass containers.
   - D) Only in approved containers with flame arresters and pressure release valves.

2. Vapors from flammable liquids:
   - A) Rise to the ceiling.
   - B) Can travel across a room.
   - C) Are not themselves flammable.
   - D) Sink to the floor.
   - E) Can travel only a few inches.
   - F) Are highly flammable.

3. An ampere is a measure of:
   - A) The force that pushes the current along the wire.
   - B) The amount of current that flows through the wire.
   - C) The resistance to the flow of current.
   - D) The rate of using electrical power.

4. The normal wall outlet is capable of carrying:
   - A) 7 amperes.
   - B) 10 amperes.
   - C) 15 amperes.
   - D) 20 amperes.

5. An ordinary extension cord can safely carry:
   - A) 7 amperes.
   - B) 10 amperes.
   - C) 15 amperes.
   - D) 20 amperes.

6. The UL (Underwriters' Laboratories) label on electric tools, appliances, and extension cords is a guarantee of safety.
   - A) Right
   - B) Wrong

7. If there is a fuse that blows frequently, solve the problem by replacing the old fuse with one of higher amperage. For example, replace a 15 amp fuse with a 30 amp fuse.
   - A) Right
   - B) Wrong

8. The best clothes to wear while working in the workshop are:
   - A) Loose-fitting, lightweight clothes that allow freedom of movement and good air circulation to keep cool.
   - B) Close-fitting clothes.

9. Some electric tools and appliances have three-prong plugs. If the receptacles in your home or workshop have only two slots you should:
   - A) Try to break off the third prong.
   - B) Buy and properly connect an adapter plug that will allow the three-prong appliance or tool plug to fit the wall receptacle.
   - C) Replace the wall receptacle with a three-slot receptacle.

10. The best immediate treatment for a minor burn is to coat the area with grease or ointment.
    - A) Right
    - B) Wrong

Be A Quiz Whiz
Answer Guide

1. B

   There is no safe way to store gasoline in your home or in your car. If you must store gasoline, use approved containers with flame arresters and pressure release valves, and keep them away from the house and out of the car.

2. B, D, and F

   Many people forget that the vapor from a flammable liquid can be as dangerous as the liquid itself. People who would never dream of tossing a match into a can of gasoline or paint thinner use these products near pilot lights, lighted stoves, space heaters, or while smoking. Vapor can travel across a room and be ignited by a pilot light or a stray spark from workshop equipment. Be extremely careful with these products; use them only in well ventilated areas and away from any possible ignition source.

3. B

   An ampere is a measure of the amount of current that flows through the wire. It is this current that can kill you. ("A" defines volt; "C" defines ohm; and "D" defines watt.) Most electrical appliances list on their labels, the watts or amperes they use. If the wattage is given, divide by 120 (the usual household voltage) to find the amperage. Use this information to avoid overloading circuits and creating a fire hazard.

4. C

   The normal wall outlet can handle 15 amperes safely. Some workshops may have circuits in which the outlets can safely carry 20 amps or more. If you are not sure, check the service panel to find the safe load. In either case, do not overload outlets by using multiple adapter plugs.

5. A

   Most regular extension cords can safely carry only 7 amperes—about half of what the average wall outlet can handle. In a workshop, heavy duty extension cords may be preferable. Do not overload the extension cord. The wires may overheat and start a fire. (Also, be sure the extension cord is the right length. Voltage drop resulting from a too long cord may damage motors and reduce efficiency.)

6. B

   The UL label is not a guarantee of safety. It means that the manufacturer has complied with certain voluntary safety standards.

7. B

   Using a fuse of higher amperage than the circuit is designed to handle allows more current to flow through the wires than is safe. The wires—or the extension cord with all those extra tools and appliances plugged in—may overheat and start a fire.

   Also, if a fuse blows repeatedly, check to be sure there is no short in the circuit. If the metal strip is parted but the window is not discolored, the cause is an overload.

8. B

   Close-fitting clothes are less likely to get tangled in machinery and less likely to come into contact with a flame or heating coil. Also, sturdy, tightly woven fabrics, such as denim, are less likely to be ignited by stray sparks than thin, loosely woven materials. Loose-fitting clothing—pants with wide legs, loose, floppy sleeves—and dangling jewelry or rings pose a safety hazard around machinery.

9. C

   The ideal solution is to replace the two-slot wall receptacle with a three-slot grounded receptacle. The third prong is designed to ground the tool or appliance and prevent or reduce shock hazards. If you choose to use an adapter plug, install it properly. With the power to the circuit in question turned off, remove the screw in the receptacle cover plate. Plug the adapter into the receptacle and replace the screw through the hole in the adapter's ground contact. (Some types of adapter plugs have a wire with a small hook in the end which must be attached to the screw.)

10. B

    The best immediate treatment for a minor burn is to run cool water over the injured area as quickly as possible. Grease, butter, or ointments shut out air, prevent cooling, and may increase the severity of the burn.

A New Twist In Industrial Arts

County Gazette
September 2, 1976

It used to be that in order to pass an industrial arts course, you needed to know how to build a book case or operate a drill. But in Richard Crenshaw's class, that is no longer enough.

Mr. Crenshaw, head of the industrial arts department at County High School, insists that part of performing a task well is performing it safely. For that reason, his courses emphasize the recognition and correction of potentially hazardous situations before accidents occur.

"Many accidents happen around the home workshop because people don't realize that some products can be dangerous if they're not used properly," Mr. Crenshaw says. "You'll see people every day smoking while using an aerosol . . . sometimes right next to the furnace. Or they'll clean a piece of equipment with gasoline. Or they'll leave oily rags lying around the shop. They either don't know of the hazards, or they just don't think.

"I decided that my industrial arts classes were logical places to teach people the right way from the time they begin working in a shop and to keep reminding them so that there is no way they can forget. I think that industrial arts classes that don't teach students how to prevent fires, burns, and other accidents are only doing part of their job."

For that reason, when Mr. Crenshaw's students learn to operate a power tool, they also learn how to prevent potential electrical problems. Industrial cleaners are discussed not only with regard to what spots and stains they will remove, but how to choose those that are least hazardous, where to use them, and how to store them.

Every student knows how to operate the various kinds of fire extinguishers—an art learned by doing in a foam-filled, damp class session—and, just as important, when not to waste time with a fire extinguisher, but just clear out and call the fire department. All this is reinforced with films and brochures from a number of sources—the U.S. Consumer Product Safety Commission, the National Fire Protection Association, insurance companies, and others.

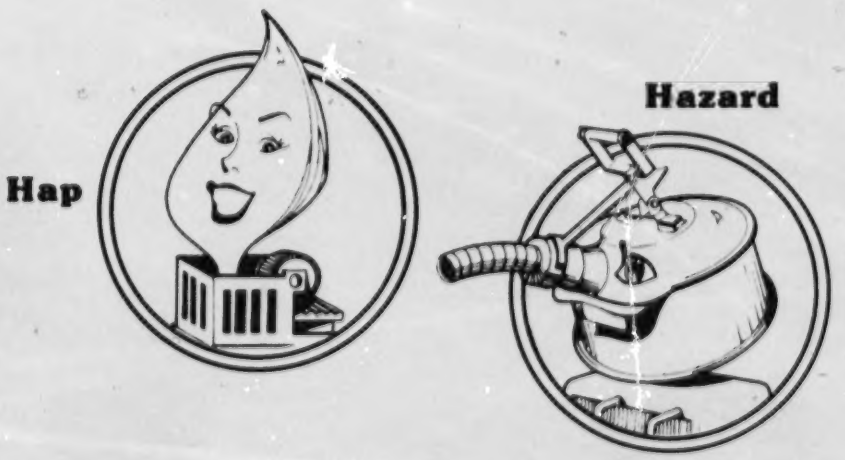
How did Mr. Crenshaw develop such a concern for teaching his students workshop safety? "Like everyone else, I only became really concerned after a dear friend was injured" in an accident that Mr. Crenshaw describes as "all too typical."

The friend was using gasoline to remove a paint spot on a cabinet. The vapors, which are heavier than air, traveled across the room to a heating stove, causing an explosion. The friend was severely burned and spent six weeks in the hospital. After that, several skin grafts were necessary.

But, unlike most of us, Mr. Crenshaw has put his concern to good use. Not only does he make safety an integral part of his courses, he has also lectured at PTA meetings on the subject and was instrumental in organizing a safety fair to be held at County High next month.

The fair, which is "something of a cross between those health fairs held in shopping centers and the usual school science fair," according to Mr. Crenshaw, will include a number of exhibits and demonstrations of common safety hazards and how to eliminate them. County High students, the PTA, the fire department, and a number of civic organizations like the Jaycees and the Lions Club are involved in the effort. Free informational materials will be available to those who attend the fair.

All who come and take advantage of this opportunity will owe a debt to Mr. Crenshaw for helping them make their workshops safer places to work.



VI. A Guide for Physical and Social Science Teachers

Science classes provide an excellent opportunity for students to gain a greater understanding of flammable products and ignition sources—why certain products are dangerous in given situations . . . how fires can be prevented and controlled . . . what can result when preventive measures are not followed.

A well-equipped physical science lab will permit impressive demonstrations of the flammability of vapors from gasoline and other flammable liquids, the possibility of spontaneous combustion, and more. Under the controlled conditions of the lab, many things can be demonstrated safely that would be unsafe if attempted anywhere else.

As for the social sciences, social studies, civics, or history class offer an opportunity to focus on the history of fire, flammable products, and electricity. These classes also lend themselves to discussions of the prevention of fires and injuries through such means as governmental regulations and inspections. The economic and social consequences of lack of attention and the resulting losses can also be discussed.

Below is a listing of the activities recommended for use by physical or social science teachers. First, scan the list and select those activities that seem to apply to you. Then, refer to the page or pages indicated for a detailed description of each.

The U.S. Consumer Product Safety Commission offers a number of fact sheets and brochures that cover the products emphasized in these activities. In addition, *Fire In Your Life*, and a transparency presentation entitled *The Hazard Hunt* are available from the Commission to provide you with any specific back-up material you might require. Other sources of information are listed in the Appendix of this Guide.

Activities for Physical and Social Science Classes

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1. United We Stand, Divided We . . .

Approximate Time: 30 minutes

Materials: Matches, bits of steel wool, glass or metal container, piece of wood

Objective: Students should learn that while some things burn more readily than others, all things will burn.

Review with your students the three things necessary to start a fire—heat, air, and fuel—and build an understanding of the chemical changes involved. Point out that heat can come from a variety of sources—chemical, electrical, and frictional.

Explain that anything—even steel—will burn if the heat source is sufficient to change the fuel to a vapor state so that oxygen can readily combine with it.

- Demonstrate this concept by burning bits of steel wool in a glass or metal container.

Explain that finely divided materials burn more readily because the surface area of the material is greater, increasing its ability to absorb heat and allowing more air to reach the smaller particles.

- Demonstrate that the splintered end of a piece of wood burns more readily than the solid end.

2. Spontaneity Is Not Always Good

Approximate Time: 30 minutes

Materials: Rags, linseed oil, thermos bottle, laboratory thermometer

Objectives: Students should understand what causes fire. Students should learn the basic principles of spontaneous combustion.

Teach your students that fire is the rapid combustion of oxygen with a combustible substance—a very rapid form of oxidation. The oxidation of iron is a slower process that produces rust.

Newspapers tend to yellow and turn brittle with age. This yellowing results from the oxidation or slow burning of carbon and hydrogen. If newspapers are piled up in a warm, slightly damp place where the heat resulting from this oxidation cannot escape, heat sufficient to set the papers on fire may build up and cause a fire. This process is known as spontaneous combustion.

Spontaneous combustion may also occur when oily rags are left lying about. Oil, a carbon compound, oxidizes when in contact with air. When enough heat accumulates, a fire can result. To demonstrate spontaneous combustion, moisten some rags with raw linseed oil, place in a well-insulated metal chamber (a thermos bottle could be used), place a lab thermometer in with rags and have students note how temperature rises. You may have ignition occur, so use the necessary precautions to avoid any spread of fire. Point out to the students that spontaneous combustion can be prevented by the total exclusion of air (e.g. by storing oily rags in sealed metal containers) or by providing good ventilation so that heat does not build up.

3. Put It Out

Approximate Time: 30 minutes to 1 hour

Materials: Duplicated copies of chart, common types of fire extinguishers

Objectives: Students should know the correct type of extinguisher to use for various classes of fire. Students should be able to operate fire extinguishers.

Discuss the different classes of fires with your students and the kinds of fire extinguishers that should be used for each class. You may wish to reproduce and distribute the chart included here. (See following page.)

In class, demonstrate the proper way to use the common types of fire extinguishers. Let the students practice using them. Emphasize that it is foolish to try to put out a fire larger than one in a wastebasket. If the fire is sizable, tell the students to clear out and call the fire department.

4. All Charged Up

Approximate Time: 30 minutes

Materials: Dry cell battery, Christmas tree light socket, insulated and uninsulated copper wires

Objective: Students should learn the typical hazards associated with electricity

Discuss the properties of electricity. Set up a simple electrical circuit using a dry cell battery, a Christmas tree light socket, and both insulated and uninsulated copper wires. Demonstrate what happens in a short circuit. Discuss the dangers of overloaded circuits and frayed wires.

KIND OF FIRE

DECIDE THE CLASS OF FIRE YOU ARE FIGHTING. . .

. . .THEN CHECK THE COLUMNS TO THE RIGHT OF THAT CLASS

APPROVED TYPE OF EXTINGUISHER

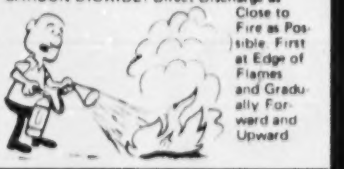
MATCH UP PROPER EXTINGUISHER WITH CLASS OF FIRE SHOWN AT LEFT

	FOAM Solution of Aluminum Sulphate and Bicarbonate of Soda	CARBON DIOXIDE Carbon Dioxide Gas Under Pressure	SODA ACID Bicarbonate of Soda Solution and Sulphuric Acid	PUMP TANK Plain Water	GAS CARTRIDGE Water Expelled by Carbon Dioxide Gas	MULTI-PURPOSE DRY CHEMICAL	ORDINARY DRY CHEMICAL
CLASS A FIRES USE THESE EXTINGUISHERS ORDINARY COMBUSTIBLES • WOOD • PAPER • CLOTH ETC.	A B	X	A	A	A	A B C	X
CLASS B FIRES USE THESE EXTINGUISHERS FLAMMABLE LIQUIDS, GREASE • GASOLINE • PAINTS • OILS, ETC.	A B	B C	X	X	X	A B C	B C
CLASS C FIRES USE THESE EXTINGUISHERS ELECTRICAL EQUIPMENT • MOTORS • SWITCHES ETC.	X	B C	X	X	X	A B C	B C

HOW TO OPERATE

FOAM: Don't Play Stream into the Burning Liquid. Allow Foam to Fall Lightly on Fire.

CARBON DIOXIDE: Direct Discharge as Close to Fire as Possible. First at Edge of Flames and Gradually Forward and Upward



SODA-ACID, GAS CARTRIDGE: Direct Stream at Base of Flame

PUMP TANK: Place Foot on Footrest and Direct Stream at Base of Flames

DRY CHEMICAL: Direct at the Base of the Flames. In the Case of Class A Fires, Follow Up by Directing the Dry Chemicals at Remaining Material That is Burning

5. A Case Of The Vapors

Approximate Time: 15 to 30 minutes

Materials: Vapor trough, candle, matches, rag, gasoline

Objective: Students should understand the hazards associated with flammable liquids.

The vapors given off by flammable liquids are among the most frequently ignored safety hazards. Many common household items emit flammable vapors even at room temperature. Among these are gasoline—which gives off vapors flammable at 45° below zero F (-42.7°C) naphtha, benzene, paint removers, turpentine, and some cleaning fluids.

These vapors are heavier than air. They sink toward the floor and may travel across a room. These products should, therefore, never be used in a room where there is a pilot light, where someone is smoking, or where a spark from an electric tool or appliance could cause a fire or an explosion.

Demonstrate the properties of vapors in the lab by using a vapor trough. Place a lighted candle near the bottom of the trough. Place a rag soaked in gasoline at the top of the trough. The vapors will travel down the trough and ignite some distance from the cloth. Extinguish the fire by closing the opening and lid to the trough.

Point out that aerosol propellants are also flammable and that these products should not be used near an open flame or while smoking.

6. Caution And Precaution

Approximate Time: One class period

Materials: Reference materials and audiovisuals

Objective: Students should understand safety rules that apply to science laboratories.

Discuss safety rules that pertain to the science lab. Every school should have its own handbook of laboratory safety precautions. Make sure your students understand them.

A number of lab safety posters and a film entitled "Safety in the Chemical Laboratory" are available from the Manufacturing Chemists' Association. The National Safety Council's safety education data sheet called "Safety in the Chemical Laboratory," might also be helpful to you. Addresses of these and other information sources are found at the end of this Guide.

If you don't already have one, be sure to obtain a copy of *Fire In Your Life*, an informative catalog available from the U.S. Consumer Product Safety Commission.

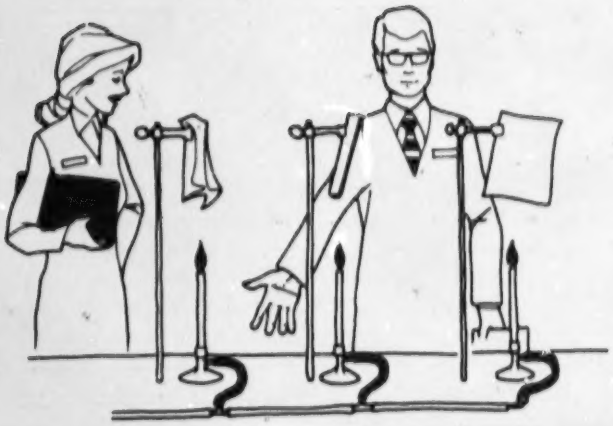
7. Out Of The Whole Cloth

Approximate Time: 30 minutes

Materials: Flame-resistant and non flame-resistant flannel, drapery fabric (rayon, cotton, acetate, modacrylic), rod or clamp device, matches or Bunsen burner

Objectives: Students should understand the differences between flame-resistant and non flame-resistant fabrics. Students should learn the standards set to implement the Federal Flammable Fabrics Act.

Demonstrate the properties of flame-resistant fabrics in the laboratory or classroom. Collect samples of non-flame-resistant flannel and of flame-resistant flannel, such as that used in children's sleepwear. Include drapery fabric samples.



Suspend the flame-resistant and the non-flame-resistant swatches of fabric from a rod or clamp device. Using a match or Bunsen burner, set fire to the swatches, one at a time. Have your students note what happens to each of them . . . and also what happens when the flame is removed.

Explain to your class that while flame-resistant fabrics *will* burn, they burn more slowly than untreated fabrics of the same type. In addition, flame-resistant fabrics will extinguish themselves when the flame source is removed.

A number of standards for fabric flammability have been set to implement the Federal Flammable Fabrics Act. These standards, which are promulgated by the U.S. Consumer Product Safety Commission, cover such areas as general wearing apparel, children's sleepwear in sizes 0-14, carpets and rugs, and mattresses.

You and your class may wish to learn more about these standards. Fact Sheet No. 25, "Federal Standards for Fabric Flammability," and a booklet on flammable fabrics are available from the U.S. Consumer Product Safety Commission. Also, *Fire in Your Life*, the Commission's catalog of flammable products and ignition sources, contains a separate chapter on flammable fabrics.

8. Fahrenheit 451°

Approximate Time: 15 to 30 minutes

Materials: None

Objective: Students should understand why flash point must be considered in using and storing flammables and what can happen when it is ignored.

The kindling temperatures, or flash points, of some common materials are given below:

Paper—363°F (183.8°C)
Cotton—422°F (227.7°C)
Kerosene—130°F (54.4°C)
Cellophane—468°F (242.2°C)
Wood alcohol—469°-576°F (242.7°-302.2°C)
Gasoline—-45°F (-42.7°C)
Naphtha, Benzene, Turpentine, Paint Removers } —72°F (22.2°C)

Discuss with your class the implications of these figures for safe handling and storage of these products. Ask the following question: If it is so obvious that flammable liquids are quite dangerous, why do people who would not leave a paper napkin near an ignited burner casually set open bottles of cleaning fluid on or near the stove or another heat source, in spite of the warnings clearly printed on the label or container?

9. Fire Sale

Approximate Time: 30 minutes

Materials: Reference materials

Objective: Students should comprehend the consequences—economic and other—of accidents involving fire.

Forty-two percent of businesses closed because of fire never reopen. Have your class discuss the possible economic consequences

of that fact. In what other ways does the loss of business, homes, or churches by fire affect the community?

10. Eternal Vigilance

Approximate Time: Short-or long-term project

Materials: Reference materials, bulletin board

Objectives: Students should know the common fire hazards —and reasons for these hazards—in both early and modern times. Students should be able to suggest ways for eliminating current hazards.

Every period in history has its own safety hazards. Have your students conduct research on hazards that were prevalent in earlier times.* Perhaps a bulletin board in the classroom could be devoted to illustrations of some of these hazards.

For example, in the early days of rail travel, flying sparks and cinders presented a real danger to the passengers. Ladies' dresses and gentlemen's frock coats frequently burned or, at best, smoldered. This problem was solved by the development of better passenger cars and cleaner engines.

When matches were first invented, the chemicals used in the striking tips caused necrosis of the lungs, and many people died. Subsequent improvements have made matches much safer. Even now, changes are being considered by the U.S. Consumer Product Safety Commission that would make matchbooks safer.

Based on the research conducted, discuss safety hazards that remain. Ask your class for suggestions on how they can be solved and what *they*, as consumers, can do to help stamp out human carelessness.

*The American Society of Safety Engineers, Park Ridge, Illinois, has a series of useful articles available on "old-time" safety hazards.

11. Ben Franklin And Company

Approximate Time: Short- or long-term project

Materials: Reference materials

Objectives: Students should gain background knowledge of fire departments and insurance companies. Students should be aware of the services offered by these groups.

Have the class research the growth and development of fire departments and insurance companies, covering such questions as: How have these agencies improved through the years? What did people do before there were fire departments? What services does your local fire department offer? Does it distribute safety information, provide guest speakers for schools and civic groups, or help set up safety demonstrations?

12. Avuncular Advice

Approximate Time: Short- or long-term project

Materials: Reference materials, art supplies bulletin board

Objective: Students should understand the role government plays in fire prevention.

Discuss the role of government in product safety regulations and fire prevention. Ask your students why they feel the government assumed this role . . . and if they think it is a proper role for the government to play.

Have your students find out what Federal, state, and local departments or agencies are involved in this kind of work. What are the duties and jurisdictions of each? Ask the class to develop a chart that summarizes this information for placement on the bulletin board.

13. The Law Of The Land

Approximate Time: Short- or long-term project

Materials: Reference material

Objective: Students should know the three effective methods of fire prevention

Ask your students to find out what laws — Federal, state, and local — regarding product safety and fire prevention apply in your area. You might wish to obtain a copy of the booklet *A Compilation of Laws Administered by the U.S. Consumer Product Safety Commission* (available from the Commission). This compilation contains the texts of the Consumer Product Safety Act of 1972, which established the Commission, and of the Flammable Fabrics Act, as amended; the Federal Hazardous Substances Act, as amended; the Poison Prevention Packaging Act of 1970, and the Refrigerator Safety Act of 1956, all administered by the Commission.

Obtain and study a copy of the housing code in your area. How often are houses and apartments inspected? By whom are they inspected?

Emphasize to your students that there are three effective methods of fire prevention: through laws and regulations; through inspections; and through education. Have a class discussion that focuses on ways your students can help educate others and how various government agencies help educate the people.

VII. A Note to the School Librarian

The school library or media center can play a vital supportive role in product safety education. The first and most obvious way is by making appropriate materials available to students and teachers. Many organizations have low-cost brochures, posters, and films that may be useful in your school's program. You might wish to write them to determine what materials might be appropriate for your library. Many of these addresses are given at the end of this Guide.

The U.S. Consumer Product Safety Commission has available a number of fact sheets and brochures. There is also a transparency presentation entitled *The Hazard Hunt*, which is available for loan from the nearest CPSC area office.

Compile a bibliography of books and materials concerning product safety, organized by grade level, and distribute it to the classes. Arrange a special section in the library where the newer or more useful books or materials can be prominently displayed.

The library can also serve as a display center for projects completed by different classes. Bulletin boards can be used to display students' art work, as well as announcements for special programs or safety fairs.

Display cases can be used to exhibit models illustrating the history of man's use of fire or technological advances in products such as matches, ovens, heaters, electrical appliances, etc.

Make product safety a prominent part of your library and, above all, make sure that students and teachers alike know what materials are available to them and urge them to use these as frequently as possible.

Appendix
Where to Go for More Information

U.S. Consumer Product Safety Commission
Office of Communications
Washington, D.C. 20207
Write for free catalog.

Consumer Product Safety Commission Area Offices:

Atlanta Area Office
Consumer Product Safety Commission
1330 West Peachtree St., N.W.
Atlanta, Georgia 30309
404-526-2231
(Ala., Fla., Ga., Ky., Miss., N.C., S.C., Tenn.)

Boston Area Office
Consumer Product Safety Commission
100 Summer St., Rm. 1607
Boston, Massachusetts 02110
617-223-5576
(Conn., Mass., Me., N.H., R.I., Vt.)

Chicago Area Office
Consumer Product Safety Commission
230 S. Dearborn St.
Rm. 2945
Chicago, Illinois 60604
312-353-8260
(Ill., Ind.)

Cleveland Area Office
Consumer Product Safety Commission
Plaza Nine Bldg.
55 Erieview Plaza, Room 520
Cleveland, Ohio 44114
216-522-3886
(Mich., Ohio)

Dallas Area Office
Consumer Product Safety Commission
Rm. 410C, 500 South Ervay
Dallas, Texas 75201
214-749-3871
(Ark., La., N.M., Okla., Tex.)

Denver Area Office
Consumer Product Safety Commission
Suite 938, Guaranty Bank Building
817 17th Street
Denver, Colorado 80202
303-837-2904
(Colo., Mont., N.D., S.D., Ut., Wyo.)

Kansas City Area Office
Consumer Product Safety Commission
Suite 1500, Traders Nat'l Bank Bldg.
1125 Grand Avenue
Kansas City, Missouri 64106
816-374-2034
(Ia., Kan., Mo., Nebr.)

Los Angeles Area Office
Consumer Product Safety Commission
3660 Wilshire Boulevard, Suite 1100
Los Angeles, California 90010
213-688-7272
(Ariz., So. Cal.)

Minneapolis Area Office
Consumer Product Safety Commission
Rm. 650, Federal Bldg., Fort Snelling
Twin Cities, Minnesota 55111
612-725-3424
(Minn., Wis.)

New York Area Office
Consumer Product Safety Commission
6 World Trade Center
Vesey Street, 6th Floor
New York, New York 10048
212-264-1125
(N.J., N.Y., P.R., V.I.)

Philadelphia Area Office
Consumer Product Safety Commission
10th Floor, 400 Market Street
Philadelphia, Pennsylvania 19106
215-597-9105
(Del., D.C., Md., Pa., Va., W.Va.)

San Francisco Area Office
Consumer Product Safety Commission
Suite 500, 100 Pine Street
San Francisco, California 94111
415-556-1816
(Hi., Nev., No. Cal.)

Seattle Area Office
Consumer Product Safety Commission
3240 Federal Building
915 Second Avenue
Seattle, Washington 98174
206-442-5276
(Alas., Ida., Ore., Wash.)

Safety Section
National Institutes of Health
9000 Rockville Pike
Bethesda, Maryland 20014
Brochures, pamphlets, films (as related to research institutions).

National Fire Protection Assoc.
Publications Department
470 Atlantic Avenue
Boston, Massachusetts 02210
Films, filmstrips, brochures, posters. Write for catalog and price list.

Manufacturing Chemists Assoc., Inc.
1825 Connecticut Avenue, N.W.
Washington, D.C. 20009
Posters, brochures (especially relating to safety in the science laboratory, safety data sheets and guides).

National Safety Council
444 N. Michigan Avenue
Chicago, Illinois 60611
Pamphlets, brochures, annual accident rate reports.

American Insurance Association
85 John Street
New York, New York 10038
Brochures, pamphlets on fire safety. Write for publications list.

American Gas Association
1515 Wilson Boulevard
Arlington, Virginia 22209
Brochures, pamphlets on fire safety.

Underwriters' Laboratories, Inc.
207 E. Ohio Street
Chicago, Illinois 60611
Brochures, pamphlets on electrical safety standards, fire extinguishers, fire doors.

Research and Production Division
Office of Public Affairs
Department of Housing & Urban Development
Room 9243, HUD Building
Washington, D.C. 20410

International Assoc. of Fire Chiefs, Inc.
1329 18th Street, N.W.
Washington, D.C. 20036
Pamphlets, brochures on fire safety procedures.

Aetna Life & Casualty Companies
One Civic Center Plaza
Hartford, Connecticut 06156
Brochures, pamphlets on fire safety. Write for list.

American Mutual Liability Insurance Co.
Wakefield, Massachusetts 01880
Brochures, pamphlets on fire safety. Write for list.

Liberty Mutual Fire Insurance Company
175 Berkeley Street
Boston, Massachusetts 02117
Brochures, pamphlets on fire safety. Write for list.

National Fire Prevention and Control Administration
Public Education Office
Department of Commerce
P.O. Box 19518
Washington, D.C. 20036
Write for Fire Research reports, resource catalogs, and directories, recording fire education materials

Hartford Fire Insurance Company Group
Hartford, Connecticut 06115
Brochures, pamphlets on fire safety. Write for list.

Fire and Accident Prevention Division
General Services Administration
18th & F Streets, N.W.
Washington, D.C. 20005
Pamphlets, brochures, fire safety hints, booklets on family safety, handbooks.

Occupational Safety and Health Admin.
Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210
Brochures on safety in using hand power tools, solvents, etc.

National Smoke, Fire, Burn Institute, Inc.
Suite 833, 53 State Street
Boston, Massachusetts 02109

Your state or local health department

• U.S. GOVERNMENT PRINTING OFFICE : 1977 O-729-462/1404

More in the Hap & Hazard Series . . .

Additional materials in this series on flammable products and ignition sources are available from the U.S. Consumer Product Safety Commission. These include:

- **Fire In Your Life: A Catalog of Flammable Fabrics and Ignition Sources**

  A fully illustrated catalog of hazards and safety precautions for eight consumer products—lighters, matches, ovens and cooking ranges, extension and replacement cords, fireplaces, flammable liquids, flammable fabrics, and space heaters. Also covers electricity and combustion in terms you can understand. Presents factual information through highly readable techniques—stories, puzzles, games, and more. *Fire In Your Life* is a valuable source guide for the home or school.

- **A Guide to Flammable Products and Ignition Sources for Adult Consumers**

  Adult groups will find this Guide a useful tool for widespread communication of information on flammables and ignition sources. Emphasis is placed on eight products and how consumer groups can actively learn and communicate safety information and awareness.

- **A Guide to Flammable Products and Ignition Sources for Elementary Schools**

  Presents activities and materials that elementary school teachers can use to incorporate information about flammable products and ignition sources into the regular school curriculum. For added convenience, activities are directly referenced to chapters of *Fire In Your Life* . . . so users of the Guide won't have to look far for facts about flammables. Best of all, this Guide will make teaching—and learning—about product safety a valuable experience for all.

- **The Hazard Hunt**

  Take a *Hazard Hunt* through every area of the home with this new educational program on flammable products and ignition sources. Learn about safety with useful transparencies and script for use by schools, adult groups, and youth groups. It can be used separately or in conjunction with the other materials in this series.

Other materials available from the Commission include the Fire and Flammability Packet which contains a variety of fact sheets, four illustrated brochures—Flammable Fabrics and the Elderly; Gasoline is Made to Explode; Hazards of Flammable Liquids; Wake Up! Smoke Detectors Can Save Your Life If . . . .—and a Guide to Fabric Flammability.